THE FEMALE OF *LEPIDOSTOMA LESCHENI* (TRICHOPTERA: LEPIDOSTOMATIDAE), WITH NEW DISTRIBUTIONAL RECORDS FOR THE SPECIES[1]

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ABSTRACT: The female of *Lepidostoma lescheni* is described and illustrated for the first time and a female allotype specimen designated. Several new collection records are presented to help clarify its distribution and endemism in the Interior Highlands of North America.

While surveying the insect fauna inhabiting springs and seeps of the Ouachita Mountains in south-central Arkansas, we collected several males and females of the caddisfly *Lepidostoma lescheni* Bowles, Mathis, and Weaver. This species was recently described on the basis of a single male specimen collected from Slocum Spring on Mt. Magazine, Logan Co., Arkansas (Bowles et al. 1994). Moulton and Stewart (1996) studied the diversity and distribution of caddisflies in the Ozark and Ouachita Mountains (collectively referred to as the Interior Highlands). Their study did not yield any additional specimens of this species.

Bowles et al. (1994) suggested that *L. lescheni* was related to *L. griseum* (Banks) and *L. morsei* Weaver of the *L. griseum* Group. In addition to *L. lescheni*, five other species [*L. carrolli* Flint, *L. griseum*, *L. libum* Ross, *L. ozarkense* Flint and Harp, and *L. togatum* (Hagen)] are found in the Interior Highlands (Bowles et al. 1994, Moulton and Stewart 1996). Moulton and Stewart (1996) presented an illustrated key to the males of the six regional species. Descriptions and figures of females for the other regional species can be found in the works by Ross (1946), Flint and Wiggins (1961), Schmid (1980), Weaver (1988), and Flint and Harp (1990). The identity of the *L. lescheni* female is supported for two reasons. First, no males of other *Lepidostoma* species were found in our collections that contained males of *L. lescheni*. Second, the genitalia of *Lepidostoma* females in our collections did not agree with descriptions and figures of female genitalia for the other five *Lepidostoma* species found in the Interior Highlands. Herein, we describe for the first time the female of *L. lescheni* and present new collection records to reveal more about its distribution and endemism in the Interior Highlands. No allotype female specimen was desig-

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nated before now for *L. lescheni*.

Adults of *L. lescheni* were collected using an 8-watt ultraviolet light trap. Morphological terminology follows that of Weaver (1988). Material examined in this study is deposited in the collections of the Clemson University Arthropod Collection (CUAC), the Illinois Natural History Survey (INHS), the National Museum of Natural History (NMNH), Southern Arkansas University (SAU), the University of Minnesota (UM), and the research collections of the senior author (SRM) and John S. Weaver (JSW).

Lepidostoma lescheni Bowles, Mathis, and Weaver

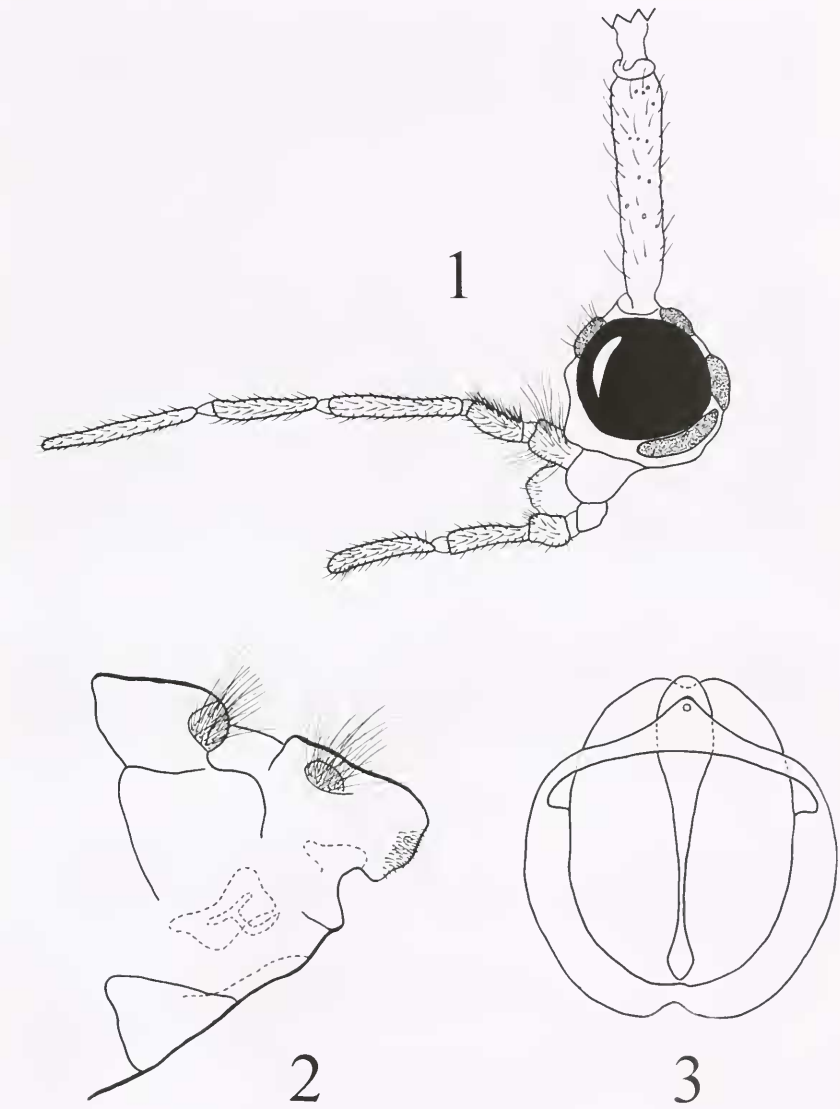
Figs. 1-3

Lepidostoma (Mormomyia) lescheni Bowles, Mathis, and Weaver 1994:249.
Lepidostoma lescheni: Moulton and Stewart 1996:133.
Lepidostoma species B: Bowles and Mathis 1989:240.

Material Examined.—Allotype, female, U.S.A, ARKANSAS, Montgomery Co., Collier Springs, 8.4 km NE of Norman, W of Road 177, T3S, R24W, Sec17, 17-X-1996, H.W. Robison (NMNH); same but 5 males, 4 females (NMNH); same but 6 km SW Black Springs, S of Road 10, T4S, R26W, SE 1/4 of Sec3, 8-VIII-1996, 1 male, 1 female (SAU); same but Blue Springs, 11.3 km NW Bonnerdale, S of Road 44, T3S, R23W, Sec14, 17-X-1996, 10 males, 13 females (SRM); same but 11.3 km NE Norman, N of Road 208, T3S, R24W, Sec22, 2 males, 9 females (UM); same but Rattlesnake Spring, 6.5 km NW, Caddo Gap, T3S, R24W, Sec33, 6 males, 5 females (CUAC); same but Tea Creek Springs, 10.5 km NW Bonnerdale, S of Road 476, T3S, R23W, Sec23, 8 females (INHS); same but Slatington Spring, 8.5 km SE of Big Fork, W of Road 1, 6 males, 2 females (JSW).

Female Description.—Head (Fig. 1): Antennal scape 0.7 – 0.8 mm long, parallel-sided, entire surface rugose with dense short setae; antennae as long as forewings. Maxillary palpi each five-segmented, segment 2 with setae longer than those on segments 3–5, segment 1 with numerous long, silky setae; labial palpi each three-segmented. Head and pronotum brown. Meso- and metascuta dark brown except for pale areas centrally and on posterior corners; meso- and metascutella pale. Wings brown with scattered pale spots in membrane; forewings each 7.2 – 7.8 mm long, hindwings each 6.5 – 7.0 mm long; frenulum of each hindwing with 6 - 8 long, stiff setae. Legs straw-colored; tibial spurs 2-4-4. Abdominal tergites brown, terga VI – IX with paired, oblong warts, with long slender setae. Genitalia (Figs. 2, 3): Spermathecal sclerite in lateral view with posterodorsal margin strongly arched; anterior margin lobate; anteroventral margin bowed ventrad; arcuate bridge (= "lateral pair of bands fusing ventrally," Weaver 1988) projecting ventrad from posterolateral margins and angled posterodorsad, extending only to posterior apex; in ventral view with inner portion ovoid; medially with elongate, keyhole-shaped posteroventral process, posterior portion of this process large with small central spermathecal duct opening, tapering anterally to narrow middle, and enlarging slightly on anterior end; anterior one-half of spermathecal sclerite with outer sclerotized border, emarginate anteromesally, posteriorly with transverse arcuate bridge, anterior margin of bridge gently curved, posterior margin with prominent posteromedial triangular extension. Ventral plate on segment VIII smooth, tongue-like.

Discussion.—Like many species of *Lepidostoma*, females of *L. lescheni* differ strikingly from the males in the shape of the antennal scape. The anterior margin in lateral view is markedly convex in males and straight in females. The female of *L. lescheni* is similar to females of other species in the *Mormomyia*



Figs. 1–3. Female of *Lepidostoma lescheni*. 1. head, left lateral. 2. genitalia, left lateral. 3. spermathecal sclerite, ventral, oriented with posterior end upward.

subgenus, but most closely resembles the female of *L. griseum*. The genitalia of *L. lescheni* differs from those of *L. griseum* by having much broader anterior and posterodorsal margins of the spermathecal sclerite, in lateral view. Also, the posteroventral arcuate bridge of the spermathecal sclerite has a posteromedial triangular extension (convex and without extension in *L. griseum*), but does not possess a ventral lobe which is present in *L. griseum* (see Weaver 1988, Figs. 142A, B).

The collection records listed above increase the number of known males and females of *L. lescheni* to 30 and 43, respectively. All records are from Montgomery County, Arkansas, which is located centrally in the Ouachita Mountains and about 80 km south of the type locality in Logan County, Arkansas. The type locality, Mt. Magazine, is south of the Arkansas River and is considered to represent a biogeographic transition zone between the Ozark and Ouachita Mountains. These new distributional records suggest that *L. lescheni* is restricted to springs and seeps in the Ouachita Mountains, making it the only lepidostomatid caddisfly that may be endemic to this mountainous region. Interestingly, *L. griseum* has been collected from small springs in the Ozark physiographic province (Moulton and Stewart 1996), thereby suggesting a local parapatric distribution.

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